

PATENT SPECIFICATION

418,605



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Complete Accepted: Oct. 29, 1934.

PROVISIONAL SPECIFICATION.

Improvements in or relating to Illuminated Clocks.

We, CLAUDE-GENERAL NEON LIGHTS LIMITED, of Queen's House, Kingsway, London, W.C. 2, a British company, and CLIFFORD HIGGINS, of the same address, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to the illumination of clocks and more particularly to clocks of the kind in which electric light sources are mounted on the hands. The object of the invention is to provide improved means for making electrical connection with the rotating light sources.

According to the present invention, at least one of the terminals of the light source mounted on one of the hands is connected to a source of electric power by a conductor which is insulated from but passes through the hollow arbor of the said hand to a contact mounted on the arbor and engaging a fixed contact connected to the said power source. Preferably the contact mounted on the arbor is mounted on the inner end of the arbor and engages the fixed contact at a point lying on the axis of rotation of the arbor.

At least one terminal of the light source mounted on the other hand may be connected to a slip ring rotating with the said other hand and engaging a fixed contact connected to a source of electric power. Furthermore the other terminal of the light source mounted on one or each of the said hands may be connected to the said power source through the hand.

The light source or sources may conveniently be luminous electric discharge tubes and the fixed contact or contacts may then be connected to a high tension source (for example the secondary winding of a transformer).

In one construction in accordance with the invention luminous electric discharge tubes are mounted along the borders of the minute hand and the hour hand and thus serve to illuminate the hands. The terminals or electrodes of the discharge tubes are arranged adjacent to the inner ends of their respective hands.

The minute or centre arbor is hollow and a capillary tube of that glass known under the Registered Trade Mark

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"Pyrex" passes axially through the centre of the arbor. A conductor passes through the tube and is connected at one end to one terminal of the electric discharge tube mounted on the minute hand, the said terminal being screened by means of a glass bell jar. The other end of the wire is connected through a spring to a contact mounted on the extreme inner end of the arbor and insulated therefrom. The contact comprises a metal disc arranged in a plane perpendicular to the axis of the arbor. The disc is engaged by a fixed contact in the form of a strip arranged in a plane parallel to that of the disc so that part of the strip adjacent to one end presses against the face of the disc. The other end of the strip is secured by means of a pair of bolts to a plate mounted on the top of an insulator, and a roller is clamped between the strip and the plate so that by adjusting the bolts, which are arranged on opposite sides of the roller, the strip can be rocked about the roller to adjust the contact pressure between the disc and the strip. The strip is connected to one terminal of the high tension winding of a transformer. The other terminal of the electric discharge tube mounted on the minute hand is connected to the minute hand, which is earthed; the other terminal of the high tension winding of the transformer is also earthed so that a circuit for the electric discharge tube on the minute hand is thus completed.

The central portion of the clock face (not the portion on which the hour numerals are placed) is secured to the hour or outer arbor so that it rotates with the hour hand. A slip ring is mounted on insulators on the inner surface of this central portion of the face. One of the terminals is in the form of a bushing passing through the central portion of the face, and a conductor passing through the centre of the bushing connects one terminal of the electric discharge tube mounted on the hour hand to the slip ring.

The contact face of the slip ring is in a plane perpendicular to that of the axis of the arbor and is engaged by a fixed adjustable contact strip, which is similar

strip 13 is connected to one terminal of the high tension winding of a transformer. The other terminal 19 of the electric discharge tube 1 mounted on the minute hand 3 is connected to the minute hand 3, which is earthed; the other terminal of the high tension winding of the transformer is also earthed so that a circuit for the luminous electric discharge tube 1 on the minute hand 3 is thus completed.

The central portion 20 of the clock face is secured to the hour or outer arbor 21 so that it rotates with the hour hand 4. A slip ring 22 is mounted on insulators 23 on the inner surface of this central portion 20 of the face. One of the terminals is in the form of a bushing 24 passing through the central portion 20 of the face, and a conductor 25 passing through the centre of the bushing 24 connects one terminal 26 of the luminous electric discharge tube 2 mounted on the hour hand 4 to the slip ring 22. The other terminal 27 of the luminous electric discharge tube 25 is connected to the earthed hour hand.

The contact face of the slip ring 22 is in a plane perpendicular to that of the axis of the arbor 21 and is engaged by a fixed adjustable contact strip 28, which is similar to that already described with reference to the minute hand and comprises the spring 28, bolts 29, 30 carried on a plate 31 mounted on a bushing 32 and includes a roller 33. The bushing 32 is carried on the stationary part 34 of the clock face on which part are provided the hour numerals. The spring 28 is also connected to one terminal of the high tension winding of the transformer.

In an alternative arrangement, the slip ring is stationarily and removably mounted on a part carried by the stationary portion of the clock face and the arbor of the hour hand carries a spring contact which engages the slip ring. The slip ring mechanism is mounted on a single readily removable plate so that it may easily be removed for servicing.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to

be performed, we declare that what we claim is:—

1. A clock of the kind specified, wherein the said conductor passes to a contact mounted on the arbor and engages a fixed contact connected to the said power source and at least one terminal of the light source mounted on the other hand is connected through slip-ring means adapted to be connected to a source of electric power.

2. A clock in accordance with Claim 1, wherein the contact mounted on the arbor is mounted on the inner end of the arbor and engages the fixed contact at a point lying on the axis of rotation of the arbor.

3. A clock in accordance with Claim 1 or Claim 2, wherein at least one terminal of the light source mounted on the other hand is connected to a slip-ring rotating with the said other hand and engaging a fixed contact connected to a source of electric power.

4. A clock in accordance with Claim 1 or Claim 2, wherein at least one terminal of the light source mounted on the other hand is connected through a moving contact with a stationary slip-ring connected to a source of electric power.

5. A clock in accordance with any preceding Claim, wherein the other terminal of the light source mounted on one or each of the said hands is connected in known manner to the said power source through the hand.

6. A clock in accordance with any preceding Claim, wherein the light source or sources are luminous electric discharge tubes and the said fixed contact or contacts are connected to a high tension source.

7. A clock having luminous electric discharge tubes associated with the hands, substantially as hereinbefore described with reference to the accompanying drawings.

Dated the 1st day of May, 1934.

For the Applicants,

A. C. PRICE,

Chartered Patent Agent.

[This Drawing is a reproduction of the Original on a reduced scale.]

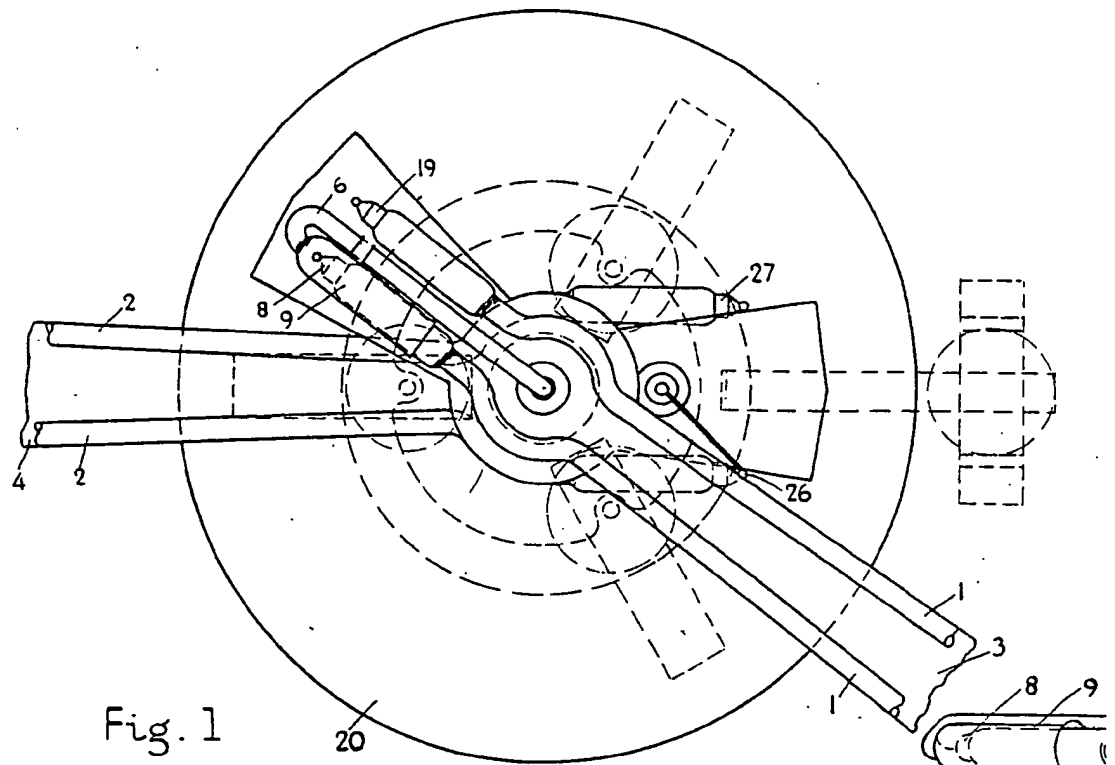


Fig. 1

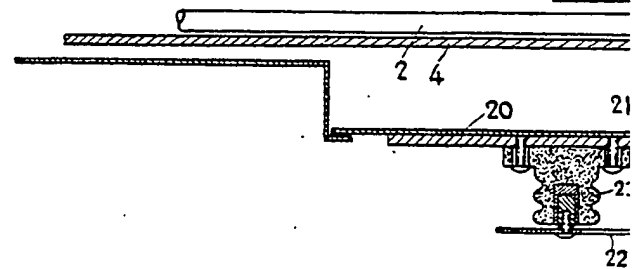
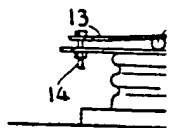
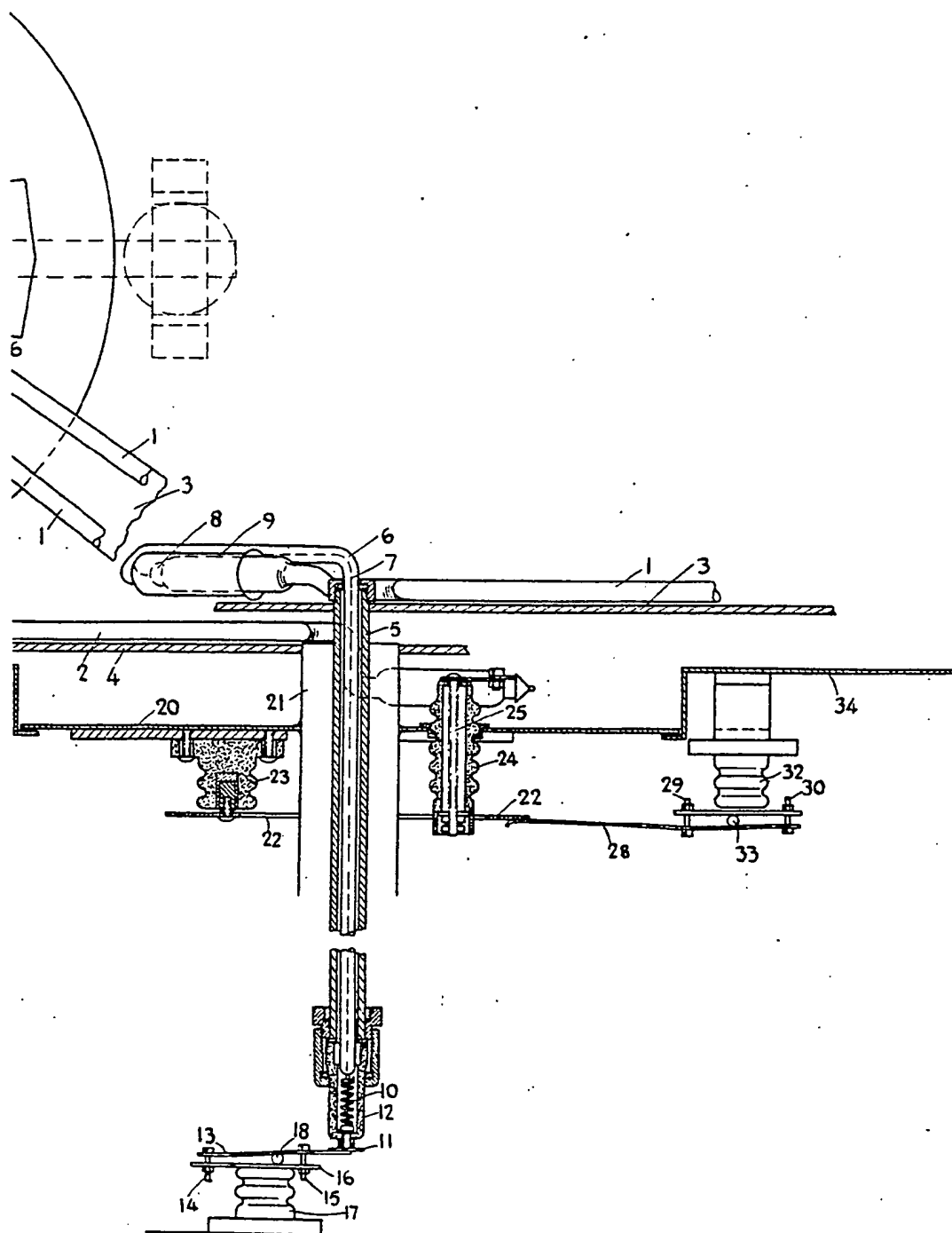


Fig. 2





Malby & Sons, Photo-Lith

418.605 COMPLETE SPECIFICATION

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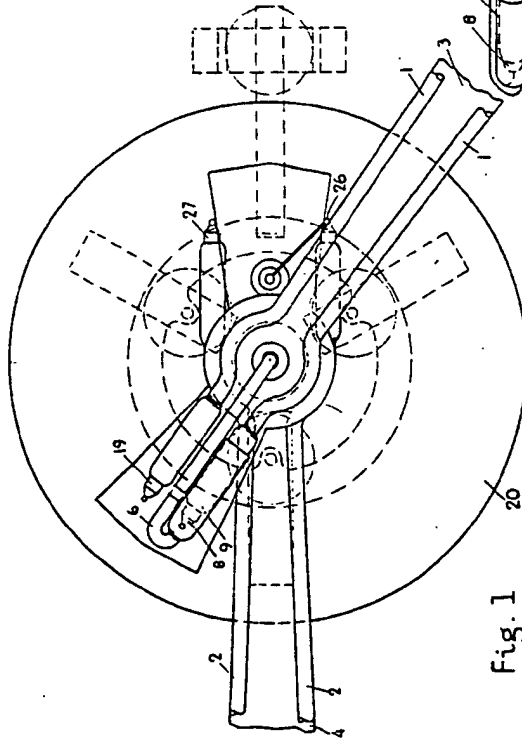


Fig. 1

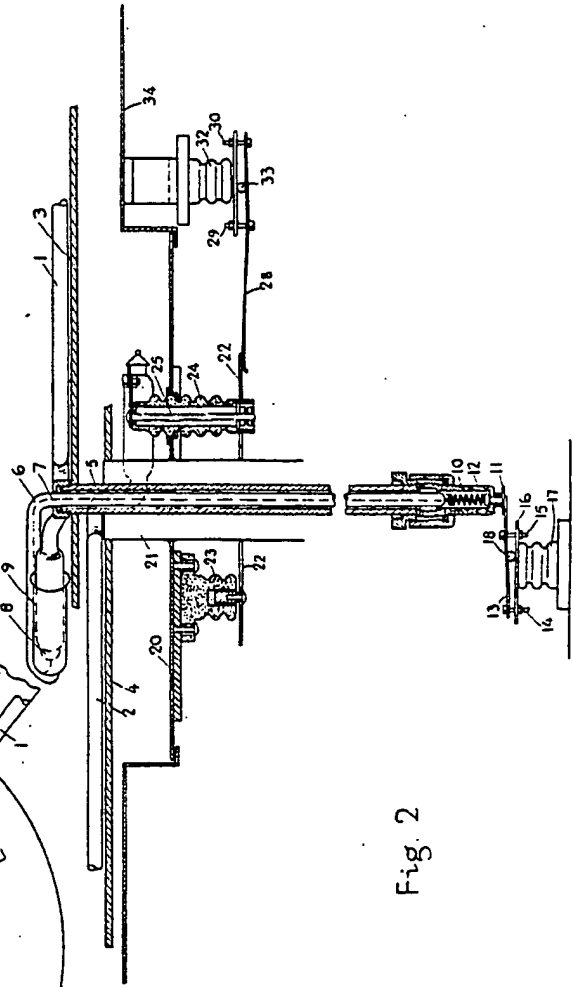


Fig. 2

[This Drawing is a reproduction of the Original on a reduced scale.]